

The RadioBoard Forums

[Quick links](#) [FAQ](#)[Register](#) [Login](#)[Home](#) < [Board index](#) < [Homemade Receivers](#) < [Crystal Radios](#)

Loop-Stick Crystal Set

[Post Reply](#)

Search this topic...



16 posts

1

2



Dan McGillis



Loop-Stick Crystal Set

Fri Sep 26, 2008 2:25 pm

I wanted a simple crystal set that would highlight Mike Peebles' rock stand ('cause I really like it) and one that could serve as a nucleus for a project radio. This little "loop stick" radio seems to be just the ticket.



0.5"x4" Amidon ferrite-61 rod,
10t cw #24 magnet wire for the antenna coupling coil,
55t cw 165/46 litz (about 230 uH),
10-410 pf Jackson Bros. capacitor,
Peebles rock stand + crystal, or a diode.

The antenna-ground is connected at the top terminal block and the audio comes out the bottom terminal block.

It works pretty good by itself with a piezo earpiece. But it really perks-up when some bells & whistles are added. Like an antenna coupling capacitor, and/or a Bogen+Benny at the output, and/or a sensitive headset, and/or a loose coupled antenna tuner, etc., etc.. It's kind of fun to fiddle around with it.

A problem I've always had is DUST. I'm banished to the basement for crystal set work and the sets seem to accumulate a thick coating of dust in short order if they're not covered-up. But I wanted this little setup to be out in the open so the grandkids could see it & maybe increase their interest in radio. (It's hard to compete with video games!)

I found some \$1.50 clear plastic storage boxes - with lids - at Bed Bath & Beyond that make nice dust covers. The radios' wooden base is screwed to the inside of the lid and the box part then sits on top. No dust on the parts and you can see the inner workings through the plastic. 😊 The inside clearance is almost 4" so there's plenty of room in there - especially if ferrite-assisted coils are used.



Not elegant, but it works.

73, Dan

OErjan



Fri Sep 26, 2008 3:38 pm

heh, great idea and a good looking set,
I store my competition rig (ATU, detector unit, Phones, ultimatch2...) in a similar box, just MUCH larger (22liters), no


wooden base screwed to the top, just store.
I also use the box as table for the rig in use (it is Poly Propylene so low loss at RF).

Last edited by [OErjan](#) on Fri Sep 26, 2008 3:43 pm, edited 1 time in total.



peeblesoriginals



 Fri Sep 26, 2008 3:42 pm

Dan,


Looks great!

Mike



corne



 Tue Sep 30, 2008 6:01 am

Hi Dan,


Nice set and I like the dust cover idea.

Corne



Dan McGillis



 Tue Sep 30, 2008 2:42 pm

Thanks fellas.


And thanks for all the work you guys have posted -- I sure have learned a lot from you nice folks.

73, Dan



homebrew



 Tue Sep 30, 2008 9:06 pm

Does anyone know why production loopstick antennas are multi layered?



Ham-er



loopstick layering

Tue Sep 30, 2008 11:53 pm

homebrew wrote:

Does anyone know why production loopstick antennas are multi layered?

Good question Homebrew,

My best guess is cost (manufacturer being cheap). As most of the commercial "loopstick" are probably intended to go into cheap transistor superhet design radios, the loopstick doesn't need the best Q or efficiency.

In these sets the selectivity is controlled by the IF stage, and the sensitivity by amplification either in the RF amp if it has one, or the converter transistor if not, and by the AGC.

Can anyone verify my guess?



Dan McGillis



Tue Oct 14, 2008 12:45 am

To complete the story - I used the little loop-stick radio in the just finished '08 Sprint contest. It was single tuned (no antenna tuner) and no diode was used - only "crystal" detectors, primarily galena. Kyocera KBT-445B-1A piezo elements made-up the headset. I did put a variable capacitor in the antenna line to vary the coupling.

The log is shown below:

heard (daytime) without Bogen + Benny								
#	DATE	TIME	FREQ	STATION	detector	detector	detector	detector
	M-D-06	UTC	khz	call	best	loud !	stable	2nd best
1	10/10/2008	1250	790	waeb	galena 1	PbTe	pyrite	galena 2
2	10/10/2008	1253	1040	wnje	galena 1	PbTe	pyrite	galena 2
3	10/10/2008	1254	1060	kyw	galena 1			galena 2
4	10/10/2008	1255	1100	wgpa	galena 1		pyrite	galena 2
5	10/10/2008	1256	1230	weex	galena 1		pyrite	galena 2
6	10/10/2008	1257	1320	wtgz	galena 1	PbTe	pyrite	galena 2
7	10/10/2008	1258	1470	wsan	galena 1	PbTe	pyrite	galena 2
8	10/10/2008	1259	1600	whol	galena 1			
9	10/10/2008	1347	710	wor	galena 1			
10	10/10/2008	1558	1210	wpht	galena 1			
11	10/10/2008	1604	560	wfil	galena 1			
12	10/11/2008	27	660	wfan	galena 1			
13	10/11/2008	33	700	wlw	galena 1			
14	10/11/2008	34	720	wgn	galena 1			
15	10/11/2008	35	740	cfzm	galena 1			
16	10/11/2008	36	780	wbbm	galena 1			
17	10/11/2008	38	900	chml	galena 1			
18	10/11/2008	39	1030	wbz	galena 1			
19	10/11/2008	52	1110	wbt	galena 1			
20	10/11/2008	115	1660	wwru	galena 1			
21	10/11/2008	121	860	cjbc	galena 1			
22	10/11/2008	122	840	whas	galena 1			
23	10/11/2008	128	650	wsm	galena 1			
24	10/11/2008	132	600	loud spanish	galena 1			
25	10/11/2008	134	550	wgr	galena 1			
26	10/11/2008	147	1080	wtic	galena 1			
27	10/11/2008	149	1170	wwva	galena 1			

Although I didn't spend a lot of time listening, this simple set will bring-in a lot of stations.

The 2 close-by stations (10 km @ 3.6kW & 11 km @ 5kW) are VERY loud -- just right for a grandkids' first taste of crystal radio. Adding a coupling capacitor to the antenna line tamed the "flame-throwers" a bit and then more stations could be heard.

At night, DX stations were strong and in-the-clear. Easy,pleasant listening.

The detector stands' whisker adjustment was smooth and very stable -- even a grandpa could do it 😊 When a VERY light contact to the crystal was achieved, the set's selectivity improved greatly. A heavier hand produced broader signals. The effect was dramatic to hear.

The addition of a Bogen + Benny makes a worthwhile improvement -- as everyone here knows.

As-is, it's a kid-friendly, easy to operate, well behaved little set.

When a decent (high Rd) diode like an FO-215 replaces the crystal detector, and an antenna tuner coil - like the one at

viewtopic.php?t=1132

is loosely coupled to the set - there's DX all over the dial. Fun stuff.

73, Dan



FtForger



Nice results...

Tue Oct 14, 2008 5:29 pm

Nice results.

My only problem was that I was never able to find a link to the 08 contest for rules/entry info etc...



OErjan



Tue Oct 14, 2008 8:08 pm

here you are FT, sadly somewhat late.

<http://crystalradio.us/crystalsprint/index.htm>



foolsgolden



Sun Dec 21, 2008 3:13 pm

i like the incredibly long stick fr0m older portables winding my own enamald wire round em and tere easy to mount my nostalgia compells me to usehome brue air cores and vario couplers my next expariment is a tribute to marconi hes the italian stalion god fater of radio.



gusnaz



Sun Dec 21, 2008 3:23 pm

“

Not elegant, but it works.

Elegance is in the eye of the beholder!

I believe it to be elegant.

Gus



golfguru



Sun Dec 21, 2008 8:52 pm

“

my next experiment
is a tribute to marconi hes the italian stalion god fater of radio.

Sounds good Goldy, keep us posted.



exray



Sun Dec 21, 2008 11:45 pm

Thats really nice, Dan. I could use a cover like that over my whole shack 😊 I recently built the breadboard rcvr and audio amp that I was showing off here a few months ago. They already look somewhat "vintage" with the tarnished brass.



foolsgolden



Tue Dec 23, 2008 2:50 am

yah dont have camra yet till after holidays but think out side the ciggar box a varyo copler w tuner selector {tikler coyle} wt optional

det/amp/set three peace 😊 ciggar box S.E.T. amp is done with feed back gitar amp neatly hidden in ciggar box with feed back

controle gain vol for 20 ohm all tgether new sp set.stil working on

other half took 1 ciggar left the rest @ nebers rpm shop for his cellibrations the amps not going to be entrd on contest but a

fools gold piyrite det mated with tuner will be.

feed back by the way on gitar amp. works well with tune n det. sets eavin after trans former and ceramic disc cap. ?

just good gon rite idea i gess 😊 might turn old amp box to all together new set or rf osc or somthinng. radio bord is new